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TITLE: STAMPER

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10 **ABSTRACT:**

A stamper with a metal plate positioned between a platen and a stamp die is disclosed. The metal plate results in an improved imprint by providing better support to the stamp die. The stamper further comprises a removable ink pad and a rotatably reversible platen with cam  
15 mechanism. The metal platen plate with it's adjoining stamp die face downwards when the stamper is in an imprint position and the metal platen plate with it's adjoining stamp die face upwards when the stamper is in a re-inking position.

20 **BACKGROUND OF THE INVENTION**

1. Field of the Invention

The present invention relates to self inking stampers with rotating reversing platens. More  
25 specifically, the present invention relates to a stamper with a metal plate positioned between the rotating platen and stamp die, providing support to the stamp die.

2. Description of the Prior Art

Self-inking hand stampers are well known in the prior art. The first self inking stampers were made almost entirely of metal. A self-inking hand stamper in which the die plate reversed its position at every stroke, so as to turn face up to take ink in its rest position and then to turn face down to make an impression, was disclosed in 1885 U.S. Patent No. 315,286 to Hill. The various types of self-inking hand stampers are well discussed in U.S. Patent No. 5,359,932 to Van Breene. Later, in U.S. Patent No. 5,517,916 a self inking stamper with a removable ink pad was disclosed. Dour, in U.S. Patent No. 5,649,485 discloses a self inking stamper with improved accessibility to a removable ink pad.

The prior art has sought to make self-inking stampers less expensive, smaller in size, and easier to assemble, as shown by U.S. Patent No. 5,152,223 to Mairon. Modern day stampers are usually made of plastic in order to be cost effective and commercially viable. A stamper made almost entirely of metal would be too costly to manufacture and market commercially. Therefore, self inking metal stampers have essentially disappeared from the marketplace. This evolution in the self-inking stamper, from metal to plastic, has however resulted in stamping devices today that are less durable and quite often do not leave a quality impression. For example, especially in large stampers, the middle section of the stamp die does not get sufficient support from the middle of the plastic platen. Therefore, for example, the far left and far right portions of the imprint are clear, while the middle portion of the imprint is faint or smudged. There are times when a very clear imprint is crucial, for example, when stamping a drug dosage on a drug prescription form. In fact, a clear imprint is always desirable. What is needed is a device that is inexpensive to produce and yet gives an excellent quality of imprint.

## **SUMMARY OF THE INVENTION**

It is an object of the present invention to provide a self inking stamper that can be inexpensively produced.

Another object of the present invention is to provide a self-inking stamper that leaves uniform

and consistently excellent quality imprints. Such a stamper would be useful in clearly imprinting small letters, for example, drug prescription information.

Yet another object of the present invention is to provide a self-inking stamper that is durable.

- 5 Still another object of this invention is to provide for a self-inking stamper that has an improved reversing cam mechanism.

The objects of this invention are accomplished by providing a metal plate between the body of a reversing platen and a rubber stamp die. The metal plate supports the stamp die, resulting in a  
10 much improved imprint. However, since the entire stamper does not need to be constructed of metal, the stamper can be manufactured at a commercially advantages cost.

The advantage of this invention is that the metal plate, attached to the platen, provides excellent resilience and support to the stamp die. Thus, while still producing a stamper that is inexpensive  
15 to manufacture, the quality of the imprint produced by this stamper is comparable to a stamper made completely of metal parts. Furthermore, the motion of the upper housing upon the lower housing is especially smooth because of the design of the stamper of the present invention. Finally, this stamper is easily and inexpensively assembled from relatively few parts.

20 In accordance with the preferred embodiment of the present invention, the stamper comprises an upper housing and a lower housing with a spring biasing vertical sliding motion of the upper housing upon the outside of the lower housing. The preferred embodiment is comprised of a platen connected with a metal plate that supports a stamp die. The platen is rotated by a cam mechanism, from a re-inking position to an imprinting position as the upper housing is slidably  
25 pushed down upon the lower housing. As pressure upon the spring is relieved, the upper housing slidably moves upwards, away from the lower housing, and the platen is returned to the re-inking position. The support of the stamp die by the metal plate results in a vastly improved imprint compared to self inking stampers disclosed in the prior art.

In accordance with at least one embodiment of the present invention, the stamper comprises a removable roof, which if transparent enables the display of an advertising insert, or label identifying the stamper text, placed between the upper housing and the roof. The roof in at least one embodiment may be electively removed and replaced at will in order to exchange inserts. Alternatively, advertising may be directly imprinted on the roof or upper housing.

5 Advertising can also be imprinted on the side surfaces of the outer upper housing. It can be seen that although inexpensive, this stamper is highly adaptable because of the ability to remove and exchange ink pads for those of other colored ink, the ability to change inserts under the roof, and even the ability to switch stamp dies when a removable adhesive is used.

10 The stamper of the present invention is comprised of an upper housing, slidably biased over a lower housing by a spring; said upper housing including parallel vertical rails, that traverse between platen tracks formed by combining an inner section and an outer section of said lower housing; an ink pad located within said lower housing; a reversible platen rotatably engaging a platen track within the inner section of said lower housing, said reversible platen comprising a  
15 platen body including a cam; a first side of a rigid metal plate connected with said platen body; and a stamp die connected with the opposite side of said metal plate; wherein said metal platen plate with it's adjoining stamp die face downwards when the stamper is in an imprint position and said metal platen plate with it's adjoining stamp die face upwards when the stamper is in a re-inking position.

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Still other objects and advantages of the present invention will become readily apparent to those skilled in the art from the following detailed description, wherein only the preferred embodiment of the invention is shown and described, simply by way of illustration of the best mode contemplated of carrying out the invention. As will be realized, the invention is capable of other  
25 and different embodiments, and its several details are capable of modifications in various obvious respects, all without departing from the invention. Accordingly, the drawing and description are to be regarded as illustrative in nature, and not as restrictive.

## BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing objects, features, advantages and preferred embodiments of the stamper of the present invention will be better understood from the following detailed description taken in conjunction with the accompanying drawings in which:

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FIG. 1 is a front perspective, exploded, view of the stamper of the present invention;

FIG. 2 is a front perspective view of an assembled self inking stamper in accordance with the present invention;

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FIG. 3 is a perspective, exploded, view of the metal plate and stamp die of the stamper of the present invention;

FIG. 4 is a perspective view of the platen, metal plate, and stamp die of the stamper of the

15 present invention after those components are connected;

FIG. 5 is a front perspective view of the assembled lower housing of the stamper of the present invention;

20 FIG. 6 is a bottom view of the stamper of the present invention with the platen in it's re-inking position;

FIG. 7 is a perspective, exploded, view of the ink pad of the stamper of the present invention;

25 FIG. 8a-e are side cross sectional views of the stamper of the present invention showing the intermediate positions of the platen between it's resting upper re-inking position and it's lower imprinting position;

FIG. 9 is a front cross sectional view of the upper housing and spring of the present invention;

FIG. 10 is a top plan view of the assembled lower housing of the stamper of the present invention.

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## DETAILED DESCRIPTION

This application claims priority under 35 U.S.C. 119 from Chinese (PRC) Application Number 02260530.4 titled TURNOVER STAMPER which was filed on September 28, 2002.

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The accompanying Figures depict embodiments of the present invention, and features and components thereof. With regard to means for fastening, mounting, attaching or connecting the components of the present invention to form the apparatus as a whole, unless specifically described otherwise, such means are intended to encompass at least conventional fasteners such as machine screws, machine threads, snap rings, hose clamps such as screw clamps and the like, rivets, nuts and bolts, toggles, pins and the like. Components may also be connected by friction fitting, snap fitting, adhesives, or by welding or deformation, if appropriate. Unless specifically otherwise disclosed or taught, materials for making components of the present invention are selected from appropriate materials such as metal, metallic alloys, natural or synthetic fibers, plastics and the like, and appropriate manufacturing or production methods including casting, extruding, molding and machining may be used.

Any references to front and back, right and left, top and bottom, upper and lower, medial and lateral, and horizontal and vertical are intended for convenience of description, not to limit the present invention or its components to any one positional or spacial orientation.

Referring more specifically to the drawings, as illustrated, in FIG. 2, the self inking stamper of the present invention is comprised of an upper housing **100**, and a lower housing **200**.

Referring additionally to FIG. 1, the lower housing **100** is comprised of an inner section **210** and an outer section **220**, said inner section **210** snap fitting inside said outer section **220**. There is also a removable ink pad **130**, and a reversible platen **140**. The upper housing **100** comprises an outside, and an inside with two sets of parallel vertical rails **114**. Furthermore, there are platen tracks **204** on the left and a right sides of the inner section **210** of the lower housing **200**. Each  
5 platen track **204** is an essentially long thin vertical opening that guides the platen **140** in a vertical up and down motion by engaging a platen guide pin.

In at least one embodiment of the present invention, there is a removable roof **110** that snap fits onto the top of the upper housing **100**. The removable roof **110** may be transparent and an  
10 advertising insert or other indicia, for example stamper text, may be placed between the removable roof **110** and the top of the upper housing **100**. Alternatively, the indicia may be directly imprinted on top of the removable roof **110** or on a side of the upper housing **100**.

There are horizontal ink pad access slots **132** in the front side and the rear side of said outer  
15 section **220** of the lower housing **200**, located near the top of the lower housing **200**. Said horizontal ink pad access slots **132** accept and engage a removable ink pad **130**. The removable ink pad **130**, as shown in more detail in FIG. 7, comprises an ink pad carrier **134** and an associated absorbent ink pad **136**. There is also a slight shelf **218** in the lateral walls of the inner section **210** of the lower housing **200** that helps further support the removable ink pad **130**. The  
20 ink pad **130** can slide into and out of the lower housing **200** without having to disassemble any other parts of the stamper. The removable ink pad **130**, although held securely by the horizontal ink pad access slots **132** and the shelves **218**, may be easily removed for re-inking or for exchange with an ink pad of alternative colored ink.

25 Also referring now to FIG. 3 and FIG. 4, a reversibly rotating platen **140** comprises a platen body **144**, with a platen guide pin **146** and a cam **142** on each side thereof. The platen guide pins **146** move up and down vertically, guided within the platen tracks **204** of the lower housing **200**, and engaging a hole **116** in the distal end of each corresponding parallel vertical rail **114**. Connected

to a first side of the platen body **144** by plate clips **152** is a metal platen plate **150**. The metal platen plate **150** is comprised of a metal or metal alloy of sufficient rigidity to prevent the metal platen plate from deforming in the process of making imprints with the stamper. One skilled in the art would readily recognize appropriate metal compounds and appropriate thicknesses for the metal platen plate **150** to render it rigid. On the first side of the metal plate **150**, is connected the  
5 platen. On the opposite side of the metal plate **150**, is connected a stamp die **154**. In the preferred embodiment, an adhesive secures the stamp die to the metal platen plate **150**. In some embodiments, the adhesive may be of a type that allows the stamp die **154** to be removed and replaced, at will, with other various stamp dies. In this manner, one stamper may be utilized to make various imprints. An example of such an adhesive would be a two sided adhesive tape well  
10 known in the art.

Referring now to FIG. 8A.-E, the spring **120** is positioned between the inside of the upper housing **100** and the outside of the lower housing **200**. Located at the inside top of the upper housing **100** is an upper spring retainer **112** that firmly holds the top of the spring **120** in position  
15 in relation to the upper housing **100**. The lower spring retainer **208** firmly holds the bottom of the spring **120** in position in relation to the lower housing **200**. The spring **120** acts to bias the upper housing **100** upward and away from the lower housing **200**.

The inner section **210** of the lower housing **200** further comprises a set of first housing pegs **212**  
20 and second housing pegs **214**. Each set of housing pegs is in proximity to one of the platen tracks **204** which are respectively located on the left and right inside wall of the inner section **210** of the lower housing **200**. As seen in FIG. 8E, the first housing peg **212** is located above the second housing peg **214**, with a housing indentation **216** between said housing pegs to rotatably guide a platen cam **142** in a manner to be described in more detail below. The cam **142** further  
25 comprises an axially aligned cam peg **147**, and a first cam indentation **148** and a second cam indentation **149**, respectively, on either side of the cam peg **147**. The cam indentations are curvilinear and slightly larger in diameter than the first housing peg **212** and second housing peg **214**.



The metal platen plate **150** with it's associated stamp die **154** face downwards when the stamper is in imprint position. The metal platen plate **150** with it's associated stamp die **154** face upwards, towards the ink pad **130** when the stamper is in re-inking position.

Referring now to FIG. 9, the upper housing further comprises an upper spring retainer **112** which  
5 secures a spring **120**. Extending from the inside of the upper housing **100** are two sets of parallel vertical rails **114**. The parallel vertical rails **114** slidably guide the upper housing **100** over the lower housing **200**, as said upper housing **100** moves over the lower housing **200** in an up and down vertical traveling motion.

10 Referring to FIG. 5 and FIG. 10, once the inner section **210** and the outer section **220** are assembled, there is formed a left and a right rail guide **202**. The parallel vertical rails **114** engage the rail guides **202**. Rail tracks **206**, which also are formed by the combination of the inner section **210** and the outer section **220**, help to further securely engage the parallel vertical rails **114** as they travel within the lower housing **200**. The rail guides **202**, with their corresponding  
15 rail tracks **206**, are essentially "C" shaped openings on the top of the lower housing **200**.

Referring once again to FIGS. 8A-E, the rotation and movement of the platen **140** is shown in detail. The platen **140** in it's resting position has the stamp die **154** and metal plate **150** facing upwards against the ink pad **130**. The movement of the platen **140** from the top of the lower  
20 housing **200** to the bottom of the lower housing **200** starts when a force is applied to the top of the upper housing **100**. The force compresses the spring **120** and slides the upper housing **100** vertically downward over the lower housing **200**.

The platen guide pins **146** slide downward in the platen tracks **204**, engaged by a hole in the  
25 distal end of each of the corresponding parallel vertical rails **114**. Said parallel vertical rails move downward with the movement of the upper housing **100**. As the platen **140** moves downwardly, the first cam indentation **148** engages the first housing peg **212**, thus starting a rotation of the platen **140**. The rotation completes 180 degrees as the cam peg **147** swings to

engage the housing indentation **216**, and the second cam indentation **149** engages the second housing peg **214**. The platen **140** is thus rotated so that the metal plate and stamp die face downward, away from the ink pad **130** and towards a surface to be imprinted by the stamper. With further downward motion of the upper housing **100** upon the lower housing **200**, the stamp die extends out past the bottom of the lower housing **200** to be available to create an imprint.

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Upward movement of the platen **140** to starting position is propelled by the spring **120** which biases the upper housing **100** away from the top of the lower housing **200**. As the platen **140** moves upward toward the ink pad, the second cam indentation **149** engages the second housing peg **214**, beginning the rotation of the platen **140** back to it's original orientation. Then the cam  
10 peg **147** engages the housing indentation **216**. Finally, the first cam indentation **148** engages the first lower housing peg **212**. The platen **140** with the stamp die facing upward then comes to rest against the ink pad **130**, thus resulting in re-inking of the stamp die **154**.

The present invention further comprises a method of assembling a stamper comprising the steps  
15 of connecting the removable roof **110** to the top of the upper housing **100**; connecting the spring **120** to the inside of the upper housing **100**; connecting the inner section **210** of the lower housing **200** to the outer section **220** of the lower housing **200**; connecting the removable ink pad **130** to the assembled lower housing **200**; connecting the assembled lower housing **200** to the upper housing **100** and spring **120**; connecting the platen **140** and connected metal plate **150** to holes  
20 **116** in the parallel vertical rails **114**, by way of the platen guide pins **146**; and inspecting the assembled stamper.

The present invention may be embodied in other specific forms without departing from the essential spirit or attributes thereof. It is desired that the embodiments described herein be  
25 considered in all respects as illustrative, not restrictive, and that reference be made to the appended claims for determining the scope of the invention.